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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,172	09/09/2003	Satoru Horita	P23805	1034

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EXAMINER
PETERSON, CHRISTOPHER K

ART UNIT	PAPER NUMBER
2622	

NOTIFICATION DATE	DELIVERY MODE
09/14/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/657,172	HORITA, SATORU	
	Examiner	Art Unit	
	Christopher K. Peterson	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-14 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-14 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 09 September 2003 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 12/16/2003 and 05/04/2007 is in compliance with the provisions of 37 CFR 1.97 and has been considered by the Examiner.

Claim Objections

3. Claim 2 is objected to because of the following informalities:

Claim 2 cites "filteringprocessor" should read "filtering processor".

Appropriate correction is required.

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 5, 8, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US Patent Pub. 2002/0039142) in view of Ikeda (US Patent 6,421,087).

As to claim 1, Zhang (Fig. 1) teaches a filtering device which filters original image data, said original image data having original luminance data and color difference data, comprising:

- a generating processor (image processing apparatus 1) that generates first luminance data (middle-high range luminance component compensation section 20) and second luminance data such that said original luminance data is separated into said first luminance data and said second luminance data according to a predetermined ratio (Para 92 and 105). Specific interpolation filters interpolate luminance signals; therefore the signals are separated to a predetermined ratio (Para 92 and 105).
- a filtering processor (low frequency luminance signal generation section 15) that filters said second luminance data so as to transform said second luminance data into third luminance data (YL) (Para 110).

Zhang does not teach a synthesizing processor that synthesizes said first luminance data, said color difference data, and said third luminance data. Ikeda teaches a synthesizing processor that synthesizes luminance data (Y) and color difference data CR and CB) (Col. 4, lines 14 – 23). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided a synthesizing processor as taught by Ikeda to the image processor of Zhang, because the signals are synthesized so that an image of good quality and high definition can be generated without color moiré (Col. 14, lines 47 – 57 of Ikeda).

As to claim 13, this claim differs from claim 1 only in that the claim 1 is a filtering device apparatus claim whereas claim 13 is a digital camera with filtering device. Thus method claim 13 is analyzed as previously discussed with respect to claim 1 above.

As to claim 14, this claim differs from claim 1 only in that the claim 1 is an apparatus claim whereas claim 14 is a method. Thus method claim 14 is analyzed as previously discussed with respect to claim 1 above.

As to claim 5, Zhang teaches a generating processor generates said first luminance data (first RGB interpolation section (4)) and said second luminance data independently (second RGB interpolation section (12)).

As to claim 8, Zhang teaches a predetermined ratio is selected from a stepwise series of predetermined ratios. Zhang teaches the use of various interpolation methods can be used (Para 15 and 16).

7. Claim 2 – 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US Patent Pub. 2002/0039142) in view of Ikeda (US Patent 6,421,087) as applied to claim 1 above, and further in view of Luo (US Patent 7,031,549).

As to claim 2, note the discussion above. Zhang in view of Ikeda do not teach an image reduction processor and an image restoration processor. Luo (Fig 2) teaches:

- an image reduction processor (decompose quantized gray scale component into n-binary levels (203)) which reduces the image resolution corresponding to said second luminance data before said filtering processor filters (morphologically filter (204)) said second luminance data (Col. 3, line 29 – 59); and
- an image restoration processor recombine filter binary levels into gray level image to produce segmentation result (205) which restores the image resolution, which has been reduced by said image reduction processor (203), after said filtering processor (204) filters said second luminance data (Col. 4, line 29 – 33).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided an image reduction processor and an image restoration processor as taught by Luo to the image processor of Zhang and Ikeda, because it enhances the tone reproduction of the digital image (Col. 1, line 66 – Col. 2, line 7 of Luo).

As to claim 3, Luo teaches a second filtering processor (low-pass filter grayscale component via control of segmentation results (206)) which filters said second

luminance data which has been filtered by said filtering processor (204) once already, after said image restoration processor (205) restores said image resolution (Col. 4, lines 34 – 52).

As to claim 4, Luo teaches an image resolution can be selected from a stepwise series of predetermined resolutions (Col.3, lines 29 – 42).

8. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US Patent Pub. 2002/0039142) in view of Ikeda (US Patent 6,421,087) as applied to claim 5 above, and further in view of Kato (US Patent 7,136,100).

As to claim 6, Zhang in view of Ikeda teach a second gamma correction (14) to generate said second luminance data (YL). Zhang in view of Ikeda do not teach original image undergoes a gamma correction using a first gamma curve so as to generate said first luminance data. Kato (Fig. 3) teaches an original image undergoes a gamma correction (19) using a first gamma curve so as to generate said first luminance data (Col. 5, line 62 – Col. 6, line 19). Kato also teaches different gamma curves (19e) (Col. 5, line 62 – Col. 6, line 19).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided a gamma correction as taught by Kato to the image processor of Zhang and Ikeda, to obtain high-quality image data while preventing deterioration of image quality (Col. 2, lines 4 – 8 of Kato).

As to claim 7, Kato teaches a second gamma curve is selected from a stepwise series of predetermined gamma curves (19e) (Col. 5, line 62 – Col. 6, line 19).

9-12 are

9. Claim[illegible] rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US Patent Pub. 2002/0039142) in view of Ikeda (US Patent 6,421,087) as applied to claim 1 above, and further in view of Jogo (US Patent 6,940,620).

As to claim 9, note the discussion above. Zhang in view of Ikeda do not teach a soft focus image. Jogo (Fig. 9) teaches a soft focus (Col.7, lines 28 – 37). Ikeda (Fig. 3 cites a controller (CPU) to control the functions of the imaging device and mode selection switches (20) to select a specific mode (Col. 4, lines 36 – 50). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided a soft focus as taught by Jogo to the image processor of Zhang and Ikeda, because it is possible to reduce the moiré in the grayscale image without lowering the image quality (Col. 1, lines 58 – 65 of Jogo).

As to claim 10, this claim differs from claim 2 only in that the claim 2 is dependent on claim 1 whereas claim 10 is dependent on claim 9. Thus claim 10 is analyzed as previously discussed with respect to claim 2 above.

As to claim 11, this claim differs from claim 6 only in that the claim 6 is dependent on claim 5 whereas claim 11 is dependent on claim 10. Thus claim 11 is analyzed as previously discussed with respect to claim 6 above.

As to claim 12, Jogo teaches the extent of the soft focus can be changed. Jogo teaches a soft focus control box (86). The switch can be moved to add or subtract soft focus effect (Fig. 9 of Jogo). The controller (CPU) of Ikeda would then signal the image processor to perform the soft focus function (Col. 4, lines 36 – 50 of Ikeda).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Udagawa (US Patent 5,541,648) cites a color image pickup apparatus having a plurality of color filters arranged in an offset sampling structure.

Sasaki (US Patent 5,581,298) cites a color signal processing apparatus using plural luminance signals.

Fukui (US Patent 6,930,711) cites a signal processing apparatus and method.

Inquiries

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher K. Peterson whose telephone number is 571-270-1704. The examiner can normally be reached on Monday - Friday 6:30 - 4:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NgocYen Vu can be reached on 571-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CKP
29 Aug 2007

NGOC-YEN VU
SUPERVISORY PATENT EXAMINER